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ABSTRACT

This paper discusses the current state of research in the area of career education for gifted and talented students and its applications. The paper also addresses three major questions: What are the special career development needs of gifted and talented students?, What kinds of career education and guidance programs are currently meeting the needs of gifted and talented students?, and How might the successful strategies of these programs be integrated into the gifted education provided in every school setting, large or small? Topics examined include multipotentiality, emotional maturity and long-range planning, societal expectations versus personal goals, high and low expectations of particular groups, integration of career education and guidance into gifted education, educational models, curriculum development, rural or small town school program integration, and urban and suburban school program integration. A list of resources for career education and guidance of gifted and talented students is appended. (CT)

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Information Series No. 230

Career Education for the Gifted and Talented

Written by

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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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The ERIC Clearinghouse on Adult, Career, and Vocational Education
The National Center for Research in Vocational Education
The Ohio State University
1960 Kenny Road
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1981

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FOREWORD

The Educational Resources Information Center Clearinghouse on Adult, Career, and Vocational Education (ERIC/ACVE) is one of sixteen clearinghouses in a nationwide information system that is funded by the National Institute of Education. One of the functions of the Clearinghouse is to interpret the literature that is entered into the ERIC data base. This paper should be of particular interest to career education practitioners and decision makers as well as counselors.

The profession is indebted to Barbara A. Kerr for her scholarship in the preparation of this paper. Recognition also is due Joyce Van Tassel-Baska, Area Center for Gifted Education, Matteson, Illinois; Philip A. Perrone, Guidance Institute for Talented Students, University of Wisconsin—Madison; and Lorella McKinney, the National Center for Research in Vocational Education, for their critical review of the manuscript prior to its final revision and publication. Susan Imel, Assistant Director at the ERIC Clearinghouse on Adult, Career, and Vocational Education, coordinated the publication's development.

Robert E. Taylor
Executive Director
The National Center for Research
in Vocational Education

PREFACE

In this decade, two movements that seek to develop the achievement potential of every child have come together: the career education movement and the gifted child movement. A new recognition of the special career education and guidance needs of gifted and talented children has led to public funding of research and program development in this area. Thirty-eight states have authorized funding for gifted education, and forty-eight states have provided staffing at the state level (Zettel 1980).

Many teachers, counselors, and administrators are faced with the task of not only providing appropriate educational opportunities for gifted and talented students, but also with meeting the career development needs of these students at all levels. The information analysis presented here is intended as a tool for educators who wish to initiate, implement, or improve career education and guidance for their gifted and talented students. In addition, the analysis may be of interest to researchers who have an interest in the current state of the research in the area of career education for gifted and talented students and its applications.

In the pages that follow, three major questions will be addressed:

1. What are the special career development needs of gifted and talented students?
2. What kinds of career education and guidance programs are currently meeting the needs of gifted and talented students?
3. How might the successful strategies of these programs be integrated into the gifted education provisions, no matter how small or large, in the schools?

B.A.K.
May, 1981

EXECUTIVE SUMMARY

This paper discusses the current state of research in the area of career education for gifted and talented students and its applications. The paper also addresses three major questions: What are the special career development needs of gifted and talented students? What kinds of career education and guidance programs are currently meeting the needs of gifted and talented students? and How might the successful strategies of these programs be integrated into the gifted education provided in every school setting, large or small? Topics examined include multipotentiality, emotional maturity and long-range planning, societal expectations versus personal goals, high and low expectations of particular groups, integration of career education and guidance into gifted education, educational models, curriculum development, rural or small town school program integration, and urban and suburban school program integration. A list of resources for career education and guidance of gifted and talented students is appended.

Literature relating to the topic of career education for the gifted and talented can be found in the ERIC system under the following descriptors: *Career Education; Academically Gifted; *Gifted; Resource Materials; *Career Development; Student Needs; *Guidance Programs; Emotional Development; *Career Planning; Models; Goal Orientation; Curriculum Development; Rural Schools; Rural Education; Urban Education; Urban Schools; Talent; Elementary Secondary Education; Integrated Curriculum; *Vocational Maturity. Asterisks indicate descriptors having particular relevance.

INTRODUCTION TO THE RESEARCH

The research on career education and guidance for gifted and talented students has its roots in the gifted child movement begun by Terman in the early twentieth century. In 1921, the Genetic Studies of Genius project was begun with 1,528 children chosen on the basis of IQ scores on the newly constructed Stanford-Binet intelligence test. The project continues under the direction of Terman's associates, with the original gifted group, for the most part, now in retirement (Oden 1968; Sears 1977). Much of the public and professional attention to the results has focused on Terman's early findings, such as the final rejection of the sickly bookworm stereotypes, the evidence for the group's maintenance of superior IQ, and the clarification of the diversity among the gifted. This monumental fifty-year study, however, is not just a study of who the gifted are; it is also one of the few longitudinal career development studies.

Recent studies of Terman's gifted group, such as Sears' (1977), that examine career and life satisfactions should provide important insights for career educators and counselors. Two cautions must be observed in making generalizations from these findings. First, as will be discussed later, Terman's selection of subjects depended on a narrow definition of giftedness based on high IQ and other tests of achievement. The subjects bear more resemblance to those students considered "academically gifted" or "academically talented" than to students considered "creative" or "talented." Second, when Terman's study began, no vocational interest tests existed, and pioneering work in vocational guidance had just begun. No quantitative description of the gifted groups' career aspirations existed, therefore, and no mention was made of any specific guidance or career interventions they might have received. Lack of career information about Terman's original group, coupled with the general finding of superior mental health for the gifted group, may have led to the development of a new myth: the myth that gifted children do not need career education, guidance, or counseling in order to set and attain life goals with brilliance. This myth is still alive today among educators and researchers.

One early contributor to the literature on the gifted who recognized the needs of gifted young people for guidance was Leta Hollingsworth. Through interviews with highly gifted children, she hoped to discover the means by which genius might be nurtured (Hollingsworth 1926). Through kindly empathy and careful observation of her subjects, Hollingsworth discovered the major difficulties in personal and career development encountered by gifted children. These are difficulties that continue to be labeled and studied by current investigators: multipotentiality; the pressure of others' expectations; and the necessity of learning the adult competencies of sustained effort, rational decision making, and delayed gratification in order to engage in early career planning. Hollingsworth's subject group was based on an even narrower definition of giftedness than Terman's since she worked mainly with children of over 180 IQ. Her findings, however, as well as her deep concern for the necessity of understanding and guidance, continue to have importance for researchers and educators of the gifted.

Throughout the thirties and forties, researchers seemed primarily interested in the measurement of intellectual potential and the identification of the gifted, rather than educational or guidance needs (Whitmore 1980). Studies that would form the foundation for a broader

definition of giftedness began to emerge; however, Witty (1940) indicated that gifted children might be better identified by a variety of personality traits and behavioral characteristics. Witty and Jenkins (1934) showed that the black population contained gifted children whose psychological profiles matched those of Terman's white group, thereby establishing the importance of discovering and nurturing giftedness in all segments of society.

World War II and the Cold War that followed led to a greater awareness of the need in our society for inventive individuals having technical and scientific expertise. The shock of Sputnik led to the greatest upsurge of research in the history of the gifted child movement. Appropriate education for the gifted became a national concern. Surveys of educational provisions for the gifted were performed, as well as some good program evaluations (Hamilton 1960; Simpson and Martinson 1961). Unfortunately for gifted students, the research was plainly guided by the nation's need to understand and educate gifted individuals as national resources, rather than by a concern for helping gifted young people achieve their potential in the attainment of personal goals. While educators did begin, therefore, to publish their observations and ideas about the career guidance of gifted students (Gowan and Demos 1964), little research in this area was done.

In 1959, Terman and Oden published *The Gifted Group at Midlife: Thirty-five Years' Follow-up of the Superior Child*, showing that, for the most part, the superiority of the gifted group was maintained in social and vocational pursuits as it had been in education. To counter the possible inference that superior intellect by itself leads inevitably to achievement, a study of National Merit Scholars (Holland and Stalnaker 1958) showed that social factors, especially socioeconomic status, sex, and family, exert a strong effect on the achievement of potential by gifted students.

Finally, interest in creativity, sparked by the research of Guilford (1959), Getzels and Jackson (1962), and Torrance (1962) established that IQ alone did not sufficiently define giftedness, and that creative behavior might be fostered and guided.

The research on the gifted continued to increase in quantity and sophistication in the areas of identification, educational provisions, social influences, and creativity. In this vast outpouring of information, the literature of career guidance of the gifted represented a small trickle of data (Rothney and Koopman 1958; Gowan and Demos 1964; Sanborn and Wasson 1966).

In the late sixties, a change in the Zeitgeist occurred, with an accompanying change in attitudes toward giftedness. The focus of the late sixties and early seventies was on the plight of disadvantaged and disabled segments of society. The less obvious needs of the gifted no longer elicited public concern. Funding for research on the gifted declined as the space race with the Russians receded in importance. Special programming for the gifted came under attack as forms of social elitism, and gifted students were "mainstreamed."

Ten years of neglect and a paucity of research followed. Only through the continued commitment of research groups such as Terman's associates, the Wisconsin Research and Guidance Laboratory for Superior Students, and the National Merit Scholarship Corporation has it been possible for there to be a reemergence of a broad literature on the gifted in the seventies and eighties. The literature on the gifted has emerged profoundly changed from this period of eclipse. Some of the major changes in the research are the following:

1. Most current research on the gifted is founded on a broader, more complex definition of giftedness. Most contributors are aware of, and adhere to, the U.S. Department of Education's definition, "Talented and gifted children are those identified by professionally

qualified persons who by virtue of outstanding abilities are capable of high performance. These are children who require differentiated educational programs and services beyond those normally provided by the regular school program in order to realize their contribution to self and society." Five areas of ability are recognized: general intellectual ability, specific intellectual ability, creative thinking, leadership ability, and visual and performing arts.

2. Research on the gifted now assumes that females, minorities, and handicapped individuals have been neglected in terms of identification as gifted, and encouragement for them to achieve their full potential is offered.

3. Most current research on the gifted assumes that education extends beyond the classroom to the home and community, that it encompasses a wide range of learning activities, and that it is clearly linked through guidance and career education to the world of work.

4. Because of pressures for accountability, research on the gifted is largely evaluational research of programming. Case study research and longitudinal research, once the major substance of the literature, have been de-emphasized. Empirical studies using gifted individuals as subjects, or giftedness/talentedness as an independent variable, remain rare.

The literature of career education and guidance of the gifted analyzed here will reflect these trends and changes.

CAREER DEVELOPMENT NEEDS OF THE GIFTED

The career development needs of gifted and talented students are essentially similar to the career development needs of all young people. Frank Parsons (1967), founder of vocational guidance, described these needs as (1) knowledge of self, (2) knowledge of the world of work, and (3) true reasoning, the process of synthesis of information and decision making. Career education as it is practiced in the schools can meet these needs well.

There are a few characteristics of gifted and talented student, however, that lead to unique career development difficulties. If these special needs are not addressed, career education may not be as effective for these students. In the next section, three major career development problems of gifted and talented students will be examined: multipotentiality, emotional maturity and long-term investment, and the conflict between others' expectations and personal goals. The research and clinical observations of scholars familiar with the guidance of the gifted and talented will be brought to bear on these problems in order to understand their nature, their diagnosis, and possible sources of solutions. Finally, the special characteristics of several gifted subpopulations—the academically talented, the creative, and the highly gifted—will be discussed, and special career guidance strategies described for these groups.

Multipotentiality

Multipotentiality is the most frequently observed characteristic of the gifted related to difficulties in career development. Multipotentiality is defined as the ability to select and develop any number of competencies at a high level (Frederickson and Rothney 1972). Gifted students and those who are concerned with the guidance of the gifted have long recognized the possession of multiple potentials to be a mixed blessing. Without appropriate career guidance, multipotentiality may become a curse. Multipotential students may be straight-A high school students who insist on taking a vocational test only to learn that they are "similar" in interests and abilities to biologists, librarians, musicians, reporters, English teachers, and ministers. After graduation from high school, multipotential students may vacillate between career choices, delaying career decisions until financial need and the end of a nonfocused education drive them to take a job by default. As an adult, the multipotential gifted individual may flounder through a series of jobs, finding success but little satisfaction in any. Parents, teachers, and counselors are puzzled throughout the disappointing and spotty career of the multipotential individual. They continue to insist, "But you could be anything you want to be!" not understanding that multipotentiality is precisely the problem.

What research evidence exists about the problem of multipotentiality? The evidence is available from several areas of investigation regarding giftedness: analyses of case studies of gifted and talented students, longitudinal studies of career patterns, and analyses of vocational interests.

Some of the best case studies demonstrating the difficulties of multipotential gifted youth were those of Leta Hollingsworth conducted in the twenties. Hollingsworth (1926) interviewed

hundreds of gifted children during her career in an attempt to build the knowledge base of the "nature and nurture of genius." She found that "They are typically capable of so many different kinds of success that they may have difficulty in confining themselves to a reasonable number of enterprises" (Dennis and Dennis 1976, p. 93). She also found that gifted young people were idealistic and concerned about moral and ethical issues. Idealism led these children to feel the necessity of choosing a direction in life which would enable them to solve world problems. Often students spread themselves too thin in this effort. Hollingsworth felt that gifted students experiencing these problems had needs for understanding and guidance that were severely neglected.

The Wisconsin Guidance Institute for Talented Students has provided individualized guidance for gifted students since 1957. Many individuals of that institute and their research associates at other institutions have contributed to the definition and understanding of multipotentiality (Fredrickson and Rothney 1972; Colangelo and Zaffrann 1979; Perrone 1979; Sanborn 1979). Perrone, Karshrer and Male (1979), summarizing observations from the guidance of gifted young people, described the same idealism found by Hollingsworth, as well as a frequent belief in the "perfect job." They also observed that being told, " 'You can be anything you want,' somewhat negates and denies what and who they already are, placing them on a treadmill of continually becoming something beyond their immediate selves" (p. 14).

Sanborn, in Hoyt and Hebeler (1973), claimed that individuals who show both ability and interest concentrated in a single area are in the minority among the gifted. He observed that the scores of such individuals on aptitude and achievement test batteries "exceed those of their age mates in virtually all areas covered by tests in common use" (p. 5). Sanborn presented the standard scores of fifteen randomly selected superior students on eleven achievement and aptitude tests from the School and College Aptitude Test (SCAT), Differential Aptitude Test (DAT), Davis Reading, Terman Concept Mastery, and Watson-Glaser Critical Thinking Appraisal; superior students tended to score evenly across tests, above the 94th percentile. Gifted students also tended to perform evenly across classwork, he maintained. Distribution of grade averages for 313 students showed averages so high as to "leave little room for dramatic variation" (p. 6). One-fifth had straight A's and two-thirds were above 3.5 out of 4.0. Gifted students also participated in a wide variety of school activities. Two-thirds of boys were on varsity athletic teams and two-thirds held leadership positions in school organizations. One-fifth of the girls were cheerleaders, one-fourth were on athletic teams, and the majority held leadership positions in school organizations. Clearly, students who have consistently high scores across achievement tests, who receive A's in most of their classes, and who excel in a wide variety of extracurricular activities will have a difficult time pursuing a single career path.

Marshall (1981), reviewing her experiences in career education of gifted youth, observed that the constant multiplication of options led to anger and frustration on the part of young people who wanted desperately to narrow their choices rather than broaden them. The frustration may continue after high school, as gifted individuals attempt to choose a college major or enter the job market. Isaacs (1973) found a great deal of indecision and vacillation in career plans of the gifted, with job histories showing multiple changes of direction.

Longitudinal studies of National Merit Scholars provide important evidence for posthigh school career development problems related to multipotentiality. A study of 3,089 National Merit Scholars investigated scholastic attainment, educational aspirations, stability of career choice, and clarity of long-range goals (Watley and Kaplan 1970). Half of the scholars had changed careers once, and many were contemplating still another career. In a follow-up study of the career progress of National Merit Scholar gifted students (1,014 males and 368 females) eight years after graduation, it was found that precollege plans did not predict vocational and

educational decisions (Watley 1969). Another study of career plans of scholars over a nine-year period using 2858 men and 1079 women again found considerable instability in career plans, with women becoming increasingly undecided about careers (Watley 1968). Jepsen (1981), summarizing research on career patterns of the gifted, described the early employment patterns of the gifted as marked by delay and unpredictability.

The final source of evidence for the existence of multipotentiality is vocational interest test results. French (1958) found that a larger number of "able" students than "nonable" students had three or more scores over the seventieth percentile on the Kuder Preference Record.

In a study by Fox (1978), gifted boys and girls who took the Strong-Campbell Interest Inventory were compared with a nongifted group of boys and girls. Gifted students scored higher on basic interest scales of writing, mathematics, science, public speaking, and medical science. Gifted girls did not score lower on any interest scale than nongifted girls, and gifted boys scored lower only on the adventure scale, a measure of immaturity rather than career interests. Fox, Tobin, and Brody (1981) concluded, "Thus, gifted girls and boys are more interested in intellectual career areas, but not less interested in social, artistic, and conventional career areas than students of average ability. This would seem to support ..... the dilemma of wider ranges of interest among the gifted" (p. 290).

The idea that vocational indecision and vacillation due to multipotentiality may lead to difficulties in adjustment is supported by a longitudinal study by Martins and Pulvino (1975) of "consistent" and "inconsistent" superior students. In 1973, the authors collected information on the current employment and vocational adjustment of a group of eighty-six subjects who had graduated in 1963 from high school and who had participated in the Research and Guidance Laboratory for Superior Students. Subjects were classified as consistent or inconsistent according to Holland's Vocational Classification System: if their stated career choices in 1963 were the same or in the same occupational group as their actual job in 1973, they were considered consistent; if their original choices and present jobs were in different occupational groups, they were considered inconsistent. A questionnaire designed to measure vocational adjustment was administered to each subject. This instrument included questions relating to self-control, personal responsibility, social responsibility, and formation of a personal ideal. Consistent and inconsistent subjects were found to differ significantly on self-control, total vocational adjustment, and job status. It appears that the consistent gifted group was better able to plan and move toward an occupational goal, and was consequently more satisfied with that goal and achieved higher status jobs. The inconsistent group, in switching their preferred occupational area one or more times, may have lost the time and planning needed to be as satisfied and successful as their more vocationally consistent peers. Inconsistency of vocational interests at one time, or over a period of time, may be an indication of possible difficulties with multipotentiality.

In summary, it appears that multipotentiality emerges in elementary school and high school as a diversity of abilities, achievements, and interests evidenced by tests and in school activities; that it may become a problem past high school as students delay and vacillate between career decisions; and that it may lead to multiple changes of career in later life. Multipotentiality is only a problem for those gifted individuals who feel their career plans are out of control and who see no way to combine or reconcile diverse abilities and interests.

As children, multipotential individuals need to learn self-assessment skills and exploration skills. As adolescents, they need to learn focusing, problem solving, and decision making, and they need to test reality. As young adults, multipotential individuals need to learn job-creation

skills, the ability to project the future, and other adaptive strategies that will help them synthesize their many abilities and interests into one or many satisfying careers.

Emotional Maturity and Long Range Planning

Much has been written about the gifted child's problems of emotional maturity. Though it is quite true that the emotional development of gifted youth does not always keep pace with intellectual development, the difficulties they encounter in making career decisions do not stem from emotional immaturity. Gifted students are at least as emotionally mature as their age mates, but they experience career decision making as a problem because the kinds of decisions they make are those involving long-term investments of time, energy, and money (Sanborn 1979). Also, because of accelerated educations, many gifted students must make career decisions earlier than other students (Gowan and Demos 1964). These decisions require such adult competencies as the ability to assess long-range consequences of actions and the ability to defer gratification. A gifted student's career goals may require up to ten years of carefully planned education and training. The career educator, aware of these realities, may become frustrated with the girl who wants to drop calculus in order to have time for cheerleading practice, or the boy who turns down a scholarship to a better school to attend college with his friends. These students are simply responding to the social and emotional needs of adolescence; but meeting adolescent needs may conflict with the attainment of adult goals.

Another response of many gifted students to vocational planning, which may be related to emotional maturity, is early occupational foreclosure. Occupational foreclosure takes place when individuals make what they consider to be an irrevocable occupational decision without an adequate period of vocational exploration. Students most likely to experience occupational foreclosure are the "early emergers" (Marshall 1981). These students, upon deciding on an occupation, refuse to hear of any other. They may insist on relating all school subjects to their particular area of interest, constantly narrowing the focus of their education. Early emergers are found most often in the fields of the physical sciences, math, and music. Because of the intense demands made on the student by these pursuits, Marshall describes early emergers as "social isolates who are unable to communicate comfortably with the outside world" (p. 307). This isolation from others further reduces the opportunities for the early emerger to be exposed to career alternatives. Again, early emergers may be experiencing the normal adolescent tendencies to have intense enthusiasms, to be totally committed to something beyond quotidian existence, to be involved. In the case of early emergers, however, these adolescent needs may lead to being locked into a career that may fit their abilities, but not their eventual occupational needs.

Too intense an insistence by the early emerger on conforming to or deviating from career plans set by others may be related to a fear of failure. Fear of failure is a common attribute found in research of gifted and high achievers (Beery 1975). Years of competition and achievement in the classroom lead to an extraordinary sensitivity to the possibilities of success or failure inherent in any activity. Gifted students become well aware of the academic courses most likely to lead to an A, and likewise learn to avoid any optional school or work activities where their success is not ensured. When the long-term investment of time and training associated with many scholarly and professional careers becomes apparent, many gifted students reject these courses of action simply because they involve too many unknown probabilities. A profession in journalism may be rejected because of the possibility of failing in typing, and a profession in medicine may be rejected on the basis of a less than brilliant performance in a high school chemistry course. A study of Polish scientists showed that scientists with a fear of failure were likely to advance their careers through attacking simple or trivial problems (Nowakowska 1974).

It seems likely that many gifted students may choose careers that are trivial pursuits in order to avoid the possibility of not measuring up to unrealistic standards.

Coping with career decisions beyond the competencies of one's maturity level, early occupational foreclosure, and fear of failure are all long-range planning difficulties career educators need to address in working with gifted and talented students. For the most part these career development needs require individualized guidance or a supportive small-group guidance approach. A sensitive classroom teacher, however, can provide facts that make the connection easier between current decisions and future career consequences. The "straight facts" may concern unchanging requirements, such as the necessity of a strong math/science background for acceptance into medical school. The teacher may also describe the experiences of gifted adults in the attainment or non-attainment of their career goals, such as the experienced dissatisfaction of many gifted women who drop their careers for marriage and children. A career educator may be able to spark the interest of the early emerger in alternative careers by showing the elements they have in common with the student's major interest.

Finally, through encouragement and reinforcement, gifted students who fear failure may be persuaded to take vocational education courses and other skills-oriented courses. They may learn the importance of doing one's best rather than being the best, a lesson that will help them evaluate their efforts more realistically.

Societal Expectations Versus Personal Career Goals

Conflict between societal expectations and personal goals is the third major area of difficulty for gifted students' career development. Expectations may be too high or too low. Unrealistically high expectations take the form of exhortations to achieve ever higher goals for the greater glory of the family, the school, or the nation. Gifted students may respond to these expectations by becoming disillusioned underachievers, refusing to attempt career goals that they perceive as leading only to a lifetime of satisfying others' expectations. Other gifted students may come to have unrealistic estimates of their abilities and may set unattainable career goals.

The results of low societal expectations may be even more tragic for the gifted students, for they may never know or understand their own abilities. Gifted girls, gifted minority students, and gifted handicapped students make up that vast group of young people from whom our society expects little. These individuals often accept society's low expectations for them, and either do not seriously consider a career or choose a career far below their abilities.

While the research on overly high expectations of gifted students is largely confined to case studies, a large amount of data is beginning to accumulate about the nature and the effects of society's low expectations of particular groups of young people.

Overly High Expectations

Joanne Whitmore, author of *Giftedness, Conflict, and Underachievement*, (1980), calls the unrealistic expectations of parents and teachers "the greatest danger to the mental health of the gifted student" (p. 150). Whitmore studied highly gifted underachievers enrolled in the Cupertino California Elementary School District's Underachieving Gifted Program (UAG) from 1967 to 1979. Based on her case studies, she concluded:

> There seem to be two reasons for unrealistic adult expectations of the gifted. First of all, there is a tendency to generalize and extend advanced abilities in intellectual activities to all areas of growth and development and to all forms of intellectual tasks. . .A second reason for unrealistic adult expectations is related to the ego-involvement of parent and teachers in the successes of the child. (pp. 150-151)

Sanborn, in Hoyt and Hebeler (1973) observed that the gifted students at the Wisconsin Laboratory were intensely aware of what was expected of them by others. All students as a part of the laboratory experience wrote an essay entitled, "The Future and My Place in It." Most of these essays made reference to parents, teachers, or society's expectations for them.

The responses to a ten-year follow-up survey by Kerr (1981b) of graduates of accelerated, segregated classes for the gifted document the negative effects of overly high expectations. The twenty-four adults responding to the survey had attended classes from the fifth grade (at the height of the post-Sputnik drive for gifted education) until graduation from high school. Many of these individuals remember being impressed with the information that they were the "leaders of tomorrow," and still resented the implications of that expectation. "I find that I am never satisfied with myself and my performance—simply because I didn't grow up to be a Nobel prize-winner or the President," said one.

Although the career development process involves compromise between expectations and the realities of the world of work for all individuals, that compromise is particularly painful for young people who have been trained to believe that power, wealth, and great contributions are their inevitable destiny. Gifted and talented students need help understanding and dealing with the high expectations of others, and need to learn skills for realistically assessing their own abilities.

Low Expectations

Gifted girls. The low expectations society holds of gifted girls represent one of the greatest wastes of human resources. While it is unthinkable for a gifted man to choose not to pursue a career, it is quite acceptable for a gifted woman to give up or defer career preparation or to lower career goals in order to marry and raise a family. Sex role stereotyping attitudes toward careers are internalized as early as kindergarten by students in general (Schlossberg and Goodman 1972). One study has shown that by seventh grade, 98 percent of gifted boys expect to have a full-time career always, but only 46 percent of gifted girls expect a full-time career (Fox, Brody, and Tobin 1979). As adolescents, gifted girls can expect to encounter strong peer pressure against high career aspirations, especially from males (Entwistle and Greenberger 1972). Fox, Brody, and Tobin (1979) found that only 18 percent of adolescent boys expect their wives to have full-time jobs, and 57 percent did not expect their wives to work after they had children. If a gifted girl surmounts the sex role socialization of childhood, the pressure of adolescent peers, and the lifelong exposure to sex role stereotyping in the media, she may still encounter opposition to her career aspirations in adulthood: professional male peers may hold negative attitudes toward women who seek to integrate a career with the homemaking role (Astin 1974).

Many gifted women do not choose to struggle against these pressures in order to have a full-time career. Half of Terman's gifted women at midlife were housewives (Terman and Oden 1959). In a ten-year follow-up study of participants by the Research and Guidance Laboratory for Superior Students (Martins and Pulvino 1975), only one-third of the gifted women were employed full-time. Often, the products of gifted women's special abilities are simply lost (Schtectman 1960).

If a gifted woman attempts to combine a career and traditional homemaker role by dropping out of the job market while raising children, she may find that she has lost training opportunities and tenure. She will not earn as much or achieve as much as men her own age, and she will probably not catch up with her male peers for the rest of her working life (Card, Steele, and Abeles 1980).

Older gifted women who forfeit careers seem to be aware of their loss. A study of Terman's gifted women in their early sixties showed that full-time homemakers were less satisfied with their work patterns and experienced less joy in living than the gifted women who had had careers (Sears and Barbee 1977). Rodenstein and Glickhauf-Hughes (1979) also found that gifted women working as full-time homemakers were less satisfied than gifted women who combined a career and family life.

Finally, a cross-sectional study by Groth (1969) comparing the needs of 361 gifted males and females summed up the difficulty that females have fulfilling their needs in both the affective and cognitive domains throughout the lifecycle. The ages fourteen and forty were found to be especially traumatic. At fourteen, needs for love begin to conflict with needs for success and knowledge. Gifted girls may at this point turn away from academic competition. At forty, it seems that gifted females' love needs become satisfied and cognitive needs surface. As middle-aged gifted women seek to return to school, work, or other pursuits of knowledge, they may find that their age and other factors do not permit them to fulfill their goals.

It seems important, then, that gifted girls be given the opportunity and support needed to overcome low societal expectations if they are to achieve their full potential and enjoy all of life's possible satisfactions. Krantz (1975) found through biographical analyses that successful achievement among gifted women seemed to be the result of three factors: divergent thinking; a sense of personal autonomy; and support of parents, spouses, and friends. Farmer's research (1980) added to this list leadership and maturity as characteristics that distinguish high achieving from low achieving females. Educators who seek to develop these characteristics and resources for gifted girls may be able to help them overcome the hurdles placed before them by a society that discourages female achievement.

Minority students. Minority gifted students make up another group of gifted for whom society has low expectations. Long before the advent of the Civil Rights Movement, Witty and Jenkins (1934) established the presence of gifted children among the black population, but until recently little research has been done on the special career development needs of minority gifted students. Those few minority individuals recognized by our society for brilliant achievements and accomplishments are usually highly gifted survivors of a society that did little to encourage them, and often are alienated from their original ethnic groups (Gallagher and Kinney 1974; Bernal 1980). Minority gifted children are discouraged from achievement through their teachers' beliefs in cultural stereotypes; the negative or nonportrayal of minorities in the mass media; and finally, through their acquiesance to the stereotypes held of their group (Cole and Bruner 1971). Minority students are less likely than nonminorities to be identified by IQ tests and other verbal tests of achievement as gifted, because of the emphasis on verbal skills learned in the mainstream cultures. There are far fewer test-bright students among minority groups (Passow 1972). However, as Passow contends, "Talent is not the prerogative of any racial or ethnic group, any social class or any residential area. It may lie untapped in some situations under some conditions, but no population has either a monopoly on or any absence of talents" (p. 31).

In order to deal with society's low expectations of them, minority gifted students must confront their own feelings about achievement, their cultural group's feelings, and the dominant

culture's feelings. Colangelo and Zaffrann (1979) feel that six characteristics of the culturally diverse gifted differentiate their counseling needs from those of other students. These are—

1. establishing an identity as a black, Mexican-American, Native American, and so forth;
2. coping with keeping cultural identity and still being a part of majority culture to realize potential;
3. coping with peer pressure not to succeed in the majority white culture;
4. exhibiting weakness in verbal and semantic skills;
5. tending to have visual rather than auditory learning styles;
6. lacking ability to be introspective.

Career education and guidance must attend to these special needs of minority gifted students if they are to overcome cultural stereotypes.

Career Development Needs of Gifted Subpopulations

Understanding and coping with multipotentiality, long-range planning at any early age, and confronting and possibly overcoming societal expectations are career development tasks that seem to be common to most gifted and talented students. Beyond these common themes, it is difficult to find any other career development needs that are common to all gifted and talented students upon which professionals are willing to agree. Probably too much effort has been devoted to searching for common themes in the career development of "the gifted," and not enough time has been spent in attempting to discover the more specific needs of the subpopulations of the gifted group.

Three gifted subpopulations with unique career development needs include the academically talented, the creative, and the "profoundly" or highly gifted. Kerr (1981a) has developed special guidance strategies that are related to the ways in which these students perceive themselves and how they are perceived by others.

Academically Talented Students

The academically talented student most closely resembles older descriptions of the gifted, which emphasized school skills such as verbal reasoning skills. Two characteristics of the academically talented student that may interfere with career development are fear of failure and conformism. The academically talented student may depend on grades as a major source of self-esteem. These students may avoid any courses that do not depend chiefly on verbal or reasoning ability. Not only can these students close themselves out of opportunities for exploration, but also they never learn to fail. A student who expects to excel in everything may quit efforts altogether when failing at one thing. The career educator and counselor must challenge academically talented students to take courses and become involved in activities that allow them to perform at all levels of competence, from poor to excellent.

The second characteristic, of academically gifted students is a need for conformism. These students want to please their peers, their teachers, and their parents, and they are competent in

ascertaining precisely what behavior will please. Unfortunately, in order to be well-adjusted in our society, it has typically been necessary for students to engage in behavior that impedes the development of their full potential and limits career options. Academically talented students, unlike creative students, are most likely to conform to societal expectations, especially sex-role expectations. The counselor and career educator must help these students to acquire risk-taking abilities and to avoid conformism.

Creative Students

Creative individuals represent another gifted subpopulation. Conformism is no problem here; extreme nonconformism may be. Creative individuals may want a unique academic program to prepare for an unusual career goal. Too often, however, creative students wish to skip over the basics in order to take courses that allow more self-expression. At this point, those teachers and counselors who care the most about creativity may do the most harm. Believing that creativity is a fragile, highly destructible quality, they hesitate to impose any structure or discipline on students' creative energies. It is this hands-off policy that can kill creativity. Creativity is the ability to select and perfect ideas, and above all, to persevere until the product is completed. For creative persons to be considered gifted, they must also show the qualities of ability and task commitment (Renzulli 1977).

Students who possess special creativity in the arts encounter a career development problem that is almost unique to the fine arts—the difficulty of breaking into the field. As the report on the Center for Career Education in the Arts (Carroll 1977) points out, career ladders are invisible; people progress in their careers in the arts through a complex variety of apprenticeships, contests, auditions, shows, and patronage.

The career educator can best help the creative student by demonstrating the relationship between learning the basic rules of an art or science and success in a creative career and by exposing the student to the ways in which successful careers are made. Models of successful creative adults can provide this information most accurately, though biographies of great artists, writers, and scientists can also make the point very well.

Highly Gifted Students

For those highly gifted individuals called geniuses, the process of career decision making may be a struggle to discover a personal goal among the competing goals of others. Often highly gifted students are seen as national resources rather than as persons. Universities may vie for their enrollment and departments within universities may guard over the possession of the young prodigy (Colangelo and Zaffrann 1979). The student may have difficult educational decisions to make but is often so young that decisions are made by others. The genius may be an early emerger (Marshall 1981) who makes early career decisions.

It is important that the career educator be a neutral, helpful source of information for the highly gifted student. Also, it may be necessary for the career educator to act in an advocacy role. It is possible for highly gifted students to have nobody who is willing to listen to their dreams for the future. As a counselor to young geniuses in an accelerated university program, the author found that many of these young people wanted the time and freedom to explore many academic career options. One said, "I've only been here six months, and I'm sick of physics. Just because I'm good in physics doesn't mean I wouldn't like to take a few courses like French or anthropology." This fourteen-year-old student had to transfer to another school to avoid a hectic

schedule of graduate physics and math courses pressed on him by his many advisors. The career educator can help establish the right of the highly gifted student to as much freedom and time for exploration as are allowed other students.

It has been suggested that the student of 150+ IQ is as different from the average student as the retarded child of 50 IQ, that the genius might be better called "profoundly gifted" (Miller 1980). These students need the same quality and intensity of aid in shaping their futures that are provided to children at the other end of the mental spectrum. They also deserve, like all special children, the least restrictive environment possible. By providing opportunities for exploration, and a willing advocacy, the career educator can ensure that highly gifted individuals freely choose their place in the world of work.

In summary, three major career development problems of the gifted and talented emerge from an analysis of the literature as follows:

1. Gifted students experience multipotentiality as a difficulty in narrowing down interests enough to make manageable career plans and in selecting among many abilities those which might be developed to the most benefit of the individual and society. Without appropriate interventions, multipotential individuals may delay and vacillate in career decision making and eventually become chronic job-changers.

2. Lack of emotional maturity needed for long-range decision making may lead to inappropriate preparation for academic and career goals, early occupational foreclosure and fear of failure. Case studies show that gifted and talented students need guidance, "straight-facts," and encouragement to develop personal standards of success.

3. Societal expectations can have a destructive effect on the career development of gifted and talented students whether they are too high or too low. Overly high expectations can lead to underachievement and difficulties in making the compromises necessary to career planning processes. Low societal expectations affect girls and minority individuals profoundly. Gifted girls need help overcoming sex-role stereotypes and peer and family pressures to avoid high achievement. Minority gifted students need help in maintaining ethnic identity while feeling free to be successful.

Finally, academically talented students, creative students, and highly gifted students are gifted subpopulations with special career development needs. Academically talented students need to learn to risk failure and nonconformity occasionally. Creative students need to learn the basics as well as the more creative aspects of their art or science, and may need help with structuring career plans.

Highly gifted students often require the understanding and advocacy of a neutral adult in making career decisions in the midst of pressures to use their talents in particular ways.

CAREER EDUCATION PROGRAMS FOR THE GIFTED

What programs exist that successfully provide career education and guidance for the gifted and talented? Hoyt and Hebeler and their associates attempted to locate exemplary programs in 1973, and found their efforts unrewarding. Ellis (1976) conducted a similar survey of practices and concluded that few specialized career education programs for the gifted existed. Much has changed in the last five years. The new recognition of the career development needs of the gifted and talented has led to innovative and well-planned programs and projects in many parts of the United States. Some of these programs will be reviewed here. They were selected on the basis of originality, good design, and positive evaluations. Implications of these programs for meeting the career development needs of the gifted and talented will follow.

The Mentor Academy Program

Runions (1980) reported on the Mentor Academy Program (MAP), an alternative high school enrichment credit program for high achievement students who want to explore and expand their interests with mutually interested members of local schools, universities, professional agencies, and community services. The goal of MAP is to give the learner the ability to form a mentor support system in order to acquire and share knowledge creatively. Twenty high school students who are high achievement students with an interest in the social sciences are selected for participation each semester.

Procedure

The mentorship consists of three interactive phases. In the first, a month-long Basics Workshop, students learn basic thinking skills, creative problem-solving, self-directed learning, academic research, aesthetics, leadership, mentorship skills, futuristics, and entrepreneurial skills. The student contacts academic, career, and vocational mentors and begins to serve as a mentor to an elementary school child. The student develops a mentorship to contract at this point. The second phase, a three-month period known as the Synergistic Seminars, is a practicum in which weekly seminars are held to introduce students to a holistic approach to an area of study (in this case, environmental studies, politics, or sociology), to update information and to explore new developments in learning. The student continues the mentorship contract during this phase. During the third phase, the Mentor Exchange, students and mentors meet over a period of a month to share what they have learned from their mentorship. Interested members of the community and schools are invited to these sessions, which are organized by the students. During the course of the program the student integrates learning from six different mentors: a professor, a career person, a senior citizen, an elementary school teacher, a high school teacher, and the program facilitator.

Evaluation

Although the author provided no objective evaluation of the program, he attests to the success of the MAP model as it has developed over the past ten years in integrating mentors into the education of the gifted.

A High School Internship Program

A Eugene, Oregon, school district (Eugene 1979) reported on an internship program for gifted students designed to develop increased familiarity with occupational career opportunities in an individual area of special interest; to develop greater self-awareness; to demonstrate abilities necessary to deal with work entry problems of youth; to develop a more accurate understanding of the professional environment; and to develop in females an understanding of employment rights and a willingness to consider entering nontraditional career areas. Twenty-three students participated, nineteen of them females. Eleven were juniors and twelve were seniors.

Procedure

Students were interviewed by the project coordinator to ascertain their career interests, and based on these results a sponsor was selected for each student. The intern spent four days a week working with a sponsor in a business, governmental agency, or other organization. Students kept logs and returned for Friday seminars on career opportunities, management concepts, and problem solving. Female interns had a chance to meet with women who had achieved success in business or government.

Evaluation

An outside evaluator concluded that all five objectives were at least partially met with the second and third most fully met. Difficulties had arisen with some internship locations where not enough experiences could be provided and seminars on antidiscrimination laws were not effective.

Career Exploration Institute

Stovall (1972) reported a Career Exploration Institute which used an inquiry process to teach about the world of work. The goals of the Institute were to:

1. Introduce bright children to possible careers that do not require a baccalaureate degree but can offer opportunities for creative thought and valuable achievements.

2. Provide classroom teachers with field-tested units on career clusters that will further the concepts of career awareness and exploration without creating a new course for the general curriculum.

3. Expand teaching resources, strategies, and processes that stimulate learning and productivity in students.

Subjects were fifty-one bright, middle-grade students and 20 of their teachers from North Carolina public schools.

Procedure

The inquiry process used was a six-step procedure which followed the guidelines established by Stovall and Tongue (1971):

1. A problem or an area of interest is identified for investigation by a class, a group, or an individual.

2. The class, group, or individual makes statements about the topic in the form of hypotheses.

3. Through investigations, research, and study, students collect information about their hypotheses and formulate others.

4. Hypotheses are evaluated in light of the newly found information and decisions are made concerning the validity of the hypotheses.

5. The study is communicated to the class in an interesting and personal way with each student developing his own specific communication talent in skits, pictures, panels, debates, poems, stories, models, mobiles, charts, essays, music, or notebooks.

6. The final product is evaluated.

In a three-week period of time, students had hands-on experience and exploration in six career clusters. The twenty teachers led field trips, guided study activities, and planned explorations based on students' questions. In answer to the question, "What does a newspaper editor do?", for example, students would establish what they already knew through discussion and use of an interest center, or a resource center with occupational information and displays. Perhaps they would invite an editor to come and speak to the class, or they would take a trip to a newspaper, and study filmstrips. At the end, students might make up their own newspaper or develop another project to show their learning, which would be evaluated in terms of successful application of the inquiry process.

Evaluation

The project was evaluated through work preference scales administered as pretests and posttests. On one, the "Work Temperature," there were 234 changes from a low value to a higher one. On the other, "Would You Like To Be A. . .," children's posttest scores increased in the yes and maybe categories. The pretest and posttest results seem to indicate that children's awareness of career options increased through this project.

Center for Career Education in the Arts

The Center for Career Education in the Arts (CCEA) in Rhode Island was a career education program that combined intensive training in the arts with career education (Carroll 1977).

The goals of the program were to increase students' self-understanding, understanding of the art world-of-work, and decision-making skills. Also, the program sought to develop parents' understanding of their child's talents and values as related to career decision making. The subjects were talented high school students interested in pursuing careers in the visual arts, dance, music, theatre, and writing. They were self-nominated and auditioned. On the basis of talent and motivation, fifty-eight students were selected for the project.

Procedure

Students attended their home schools in the morning and spent afternoons at CCEA. Eighty percent of the time was spent in intensive arts training with professionals; 20 percent was devoted to career education. When weaving career education into the arts classroom did not work, a stronger career education emphasis was developed through group dynamics, self-awareness techniques, group counseling, creative dramatics, decision-making activities, and career exploration. Self-awareness groups and individual counseling helped students to become better acquainted with their interests, values, and abilities and were available to help in decision making. Faculty sharing provided an opportunity for students to learn about individual artists' experience in the arts, their current work, past history and preparation, valuable experiences, critical decisions, influences, and goals. Panels of other practicing artists were also brought in, followed by informal conversations. Field trips were arranged for each discipline. Each student had a shadowing experience with an artist whom the staff had helped to locate.

Evaluation

A third party evaluation found that the program led to students having favorable attitudes toward themselves, the arts, and world of work. Students also increased their knowledge about work in the arts and about decision making. Students could list a great many more job options relating to their chosen art form. They also seemed to develop more mature attitudes toward success.

Career Development Institute

Torrance, Kautmann and Hallford and others (1977) described a Career Development Institute for gifted adolescents that focused on individual study of societal problems, career opportunites in those problem areas, and varied methods of solving the problems. The two major areas covered were social and political culture and science and technology. The goal was to stimulate students to apply their abilities and interests to studies of careers in current critical problem areas. One hundred and ninety-one gifted adolescents participated in the Institute as a part of the Governor's Honors Program of Georgia.

Procedure

The Career Development Institute took place over the course of a summer. Each day students spent four hours in classroom work and four hours studying careers in problem areas including shadowing persons employed in problem areas, and sharing, analyzing, and planning based on information gathered. The remainder of their time was spent in recreation, entertainment, education activities, and discussion.

Evaluation

Effects of the Career Development Institute were evaluated using Torrance's creative thinking test, Thinking Creatively About the Future, and scenarios and soliloquies of future careers in the year 2001. The test was administered in alternative forms during the first week of the Institute. The pretests and posttests were scored for fluency and originality. Students' narrative future career plans, scenarios, and soliloquies were rated on the following criteria:

1. Expressed satisfaction with future career
2. Perception of self as changed
3. Perception of world/mankind as changed
4. Heightened consciousness of trying to do something to make the world better/solve future problems
5. Originality, imagination, and involvement
6. Awareness of future problems/characteristics of post industrial society
7. Solutions to future problems proposed
8. Perception of self as a creative, problem-solving person

It was found that participants in the Institute scored markedly higher on the posttest in both originality and fluency. Clear differences were found on pretest and posttest scenarios of the future. Institute participants developed more positive attitudes concerning their future careers; became more likely to see themselves as changed or changing; recognized changes that are likely to occur in the world or in human beings; developed a heightened consciousness of doing something to make a better world; showed more originality in thinking about future careers; showed more awareness of problems of future society; were able to propose better solutions; and had more confidence in themselves as creative persons. With the regular Governor's Honors program participants as test controls, participants in the Career Development Institute excelled in most of these same areas.

Career Education Program for the Talented

The Allegheny Intermediate Unit of Pittsburgh, Pennsylvania (1978) reported on a career education program for talented children in grades four through nine, focusing on the incorporation of the arts into the world of work. The goals were to increase students' knowledge of careers and to make students aware of career possibilities not presented in a regular school setting. Two hundred and fifty children who had demonstrated talent in one of six areas of the arts were selected from forty-six school districts. The six areas of student talent included: music, art, creative writing, dance, drama, and media.

Procedure

Saturday sessions, held from February through May, were led by practicing professionals in the arts from the Pittsburgh area. Seven occupational clusters—advertising, entertainment,

education/criticism, business/law, psychology/mental health, religion, and science—were related to each talent area. An estates lawyer, for instance, discussed how he used the knowledge of art in appraising art collections. Students were exposed to a number of materials and techniques used in careers through lectures, discussions, concerts, and role plays. Participants received a career information packet that provided interpretative material on the ideas presented and they were expected to develop a project and present it in their school. In addition, each student interviewed a practicing professional in the student's interest area.

Evaluation

Although participation was less than half of what was expected, those students who did participate were exposed to a variety of careers and practitioners. In general, students increased their knowledge of careers as measured by a presurvey and postsurvey of career knowledge. Most students created projects of their own, presented them in class, and received ratings in the top two of five slots. On a Career Awareness Checklist, the majority of participants felt the Career Education Program for the Talented had provided them with the most detailed information about career choices (as compared to school, parent, other adult, or other). Half of the students engaged in interviews with professionals.

Guidance Laboratory for High School Students

The Guidance Institute for Talented Students, formerly the Wisconsin Research and Guidance Laboratory for Superior Students, represents the most comprehensive approach to career education and guidance of gifted students. Sanborn et al. (1976) reported on the Career Education of Gifted and Talented Boys and Girls program. The goals of the program were to build self-awareness and social awareness, assist in social planning (career/life planning), and help students initiate action necessary to implement their plans. Three thousand six-hundred gifted students in grades nine through twelve, and their parents, teacners, and counselors have been involved in this federally funded program.

Procedure

Students enter the guidance lab experience in the ninth grade, when they are selected by their schools according to guidelines suggested by the Institute. The twenty-five criteria given for identification of the gifted and talented stress behaviors associated with ability and creativity rather than test scores. Most subjects, therefore, have been nominated by a teacher and selected by a school committee on the basis of a variety of skills and characteristics. These ninth graders fill out a number of guidance worksheets, which are exploratory and educational in nature, such as "Mapping your Educational and Career Styles." They then meet in small groups with the director of the Institute. The director becomes acquainted with each student individually and initiates, based on the student's written material and verbal report, a case study detailing the student's guidance needs. These findings are communicated clearly to the student, the parents, the teacher, and the counselor, with explicit suggestions for action. Each year, throughout high school, subjects return for testing and individual counseling. The Institute counselors meet with parents and teachers both to receive input and to make suggestions. Most suggestions involve workable strategies for the enrichment and/or acceleration of the student. Student's career development may be enhanced through the following techniques: direct contact with community resources; indirect contact such as books and bibliographies; training in decision-making skills such as force-field analysis; and training in employability skills such as interviewing and resume writing.

Evaluation

Because the Guidance Institute for Talented Students is a research through service program of the University of Wisconsin, research focuses continuously on all aspects of the program. Evaluating the program as a whole, Alexakos and Rothney (1967) compared the posthigh school progress of 214 program participants with that of 214 matched nonparticipants. Program participants were found to be more persistent in higher education, to have received more scholarships, and to hold more honorary and leadership positions in college than nonparticipants.

Evaluating the effect of a single day's experience in the guidance laboratory, Koeppe and Rothney (1964) found that seventy-five student participants increased their amount of discussion of future plans, their amount of reading, and their amount of study. Teachers stated that students with guidance laboratory experience participated more in class, worked harder, and made more requests for additional assignments. Parents stated that students increased the extent to which they talked about career plans.

Other evaluations of the program's aspects reported in the literature have concerned student visitations of university classes (Atkinson, Peterson, and Sanborn 1971); parental response to counselor suggestions (Camp and Rothney 1970); and response of high school principals to gifted programming suggestions (Hoedt and Rothney 1973).

Community-based Career Education

Colson (1981) reported on a three-part career education program for gifted high school students that combined a guidance laboratory, a mentorship experience, and an internship. The entire gifted and talented group of a high school, forty-two students, served as subjects. Twenty (nine males and eleven females) participated in the career education program and twenty-two (eight males and fourteen females) did not.

Procedure

Participants in the career education program first received the guidance laboratory experience. In the guidance laboratory, students were helped to focus on educational awareness, career awareness, self-awareness, and planning and decision-making skills. Students were expected to identify two possible career interest areas. In the second phase, the mentorship laboratory experience, students were placed in observation and shadowing activities with university professors in the career areas identified through the guidance laboratory, and encouraged to experience the career activities of the mentor as much as possible. In the third phase, the working internship experience, students received hands-on experience in their chosen career interest areas by being paired with an individual from the community who was active in either business, industry, labor, or a profession. Students observed the life-style and assumed the responsibilities of the work under the supervision of the community employer.

Evaluation

Questionnaires designed to measure students' perceptions of high school experiences in career development and students' actions after high school were mailed to participants and nonparticipants; 73.8 percent responded (fifteen participants, sixteen nonparticipants).

Participants were found to differ from nonparticipants on perceptions of whether the high school provided the following:

1. Information regarding preparation for a career
2. Identification of career field aptitudes
3. Opportunities to interact with people in the student's field of interest
4. Opportunities to pursue a special interest area
5. Opportunities to become well acquainted with someone engaged in the field of interest
6. Information regarding career field entrance requirements
7. Insights into personal needs, interests, and abilities
8. Insights into life-styles, personal characteristics, and responsibilities of individuals in the career field
9. Information about job acquisition and retention methods

More than half of the participants felt the career education program was the high school experience of greatest impact, followed by extracurricular activities, whereas nonparticipants named extracurricular activities as having the greatest impact, followed by "knowledge I would soon be graduating." Sixty percent of the participants felt that the career education program had best prepared them for postgraduation choices, followed by teacher influences, whereas nonparticipants relied mainly (50 percent) on coursework followed by teacher influences or "other" to prepare them for postgraduation choices. Program participants felt that information about career fields and self-awareness were their most significant gains.

Career Education for Preadolescents

Fox (1976a) reported on a career awareness program for preadolescents developed by the Gifted Child Study Group at the Johns Hopkins University and pilot-tested in the Baltimore City Public Schools. The program, aimed at mathematically talented youth, combined the acquisition of mathematics skills not included in the usual elementary curriculum with exposure to professional mathematicians. Participants were a racially mixed group of twelve boys and twelve girls who had been identified as mathematically gifted from fourth, fifth, and sixth grade classes at the Gifted and Talented Education project school.

Procedure

Four minicourses in applied mathematics were developed and taught by professional, university-level mathematicians (two women and two men). The courses taught included geometric drawing, statistics, probability, and computer science. Each course emphasized the ways in which math skills are used in the world of work to solve problems. Geometry was applied to art and the observation of nature; statistics to the reporting of information on the population and economy; probability was applied to decision making; and computer science, of course, to the use of computers.

Evaluation

A pre- and postevaluation were conducted over a period of five months to discover the answer to two questions: Did the students who participated in the special career education program show any immediate change in attitude toward mathematical careers? Second, did the students become more knowledgeable about mathematics and mathematical careers? Both parents and children filled out questionnaires designed to provide answers to these questions.

It was found that the special career education program increased both boys' and girls' interests in careers in mathematics and liking for math. Students improved their knowledge of math and math careers in several areas. The test of knowledge showed significant change on answers to "What is arithmetic?" and "What is mathematics?" as well as several specific questions about probability, geometry, and computers. Students showed a greater understanding about the work performed by various scientists and mathematicians, with the most change associated with understanding the work of the statistician.

Parents felt the program was highly effective, with 95 percent feeling their children found the program interesting and learned a great deal about math. Thirty-eight percent felt their children learned a lot about careers, and 55 percent felt their children showed an increased interest in career plans.

Project Choice

Case Western Reserve University (1979) sponsored "Project Choice: Creating Her Options in Career Education," a diagnostic-prescriptive program for talented adolescent women. The program's objective was to broaden the career options for participants by identifying personal and cultural barriers that may interfere with the realization of potential. Project Choice was field-tested with eleventh graders screened by counselors using the Talent Inventory and school records. Information on number of participants was not available.

Procedure

The diagnostic portion of the program consisted of a student questionnaire and an assessment of internal barriers. The questionnaire provided information about external barriers such as family structure, parents' occupation, and education, parental aspirations for the child's exposure to role models, financial resources, and sex discriminatory practices. Internal barriers were assessed by a variety of measures giving information about self-esteem, achievement motivation, assertiveness, and fear of success. The level of each student's career development was assessed by the degree to which career ideas were crystallized and the appropriateness of the student's career ideas.

All information was compiled to form a prescriptive plan for each participant, which indicated possible treatments or solutions to problems with internal or external barriers. The solutions were either individualized strategies, such as providing a student with a role model through a community interview, or group strategies, such as referral to a "self-esteem" group.

The career development program was a fourteen-week experience consisting of three career information workshops, student selected role model experiences, and eleven group sessions in which the core curriculum was modified to meet the needs of each group member.

Evaluation

The developers used a comprehensive evaluation system consisting of field tests, but recommended that a simple participant reaction sheet would have been more helpful. Results of the field-test evaluations were not available.

Changing Attitudes for Gifted Girls

Fox (1976b) reports on a program designed to change junior high girls' attitudes toward careers in science and mathematics and to change course-taking behaviors. The program consisted of a class to provide the social stimulation necessary to motivate girls. Subjects were twenty-six Baltimore-area seventh grade girls who scored 370 or better on the SAT-M tests.

Procedure

The three-month course taught by women instructors was exclusively for girls. The structure was informal, stressing small group and individualized instruction. Cooperative rather than competitive activities were stressed. Teachers emphasized the ways in which mathematics could be used to solve social problems. Individual and family counseling was used to encourage girls to view themselves as competent in mathematics.

Evaluation

The experimental group was compared to two matched control groups, one female and one male. These groups were pretested on knowledge of algebra, values, and career interests. Boys were already more predisposed than girls to consider mathematics and science careers as indicated by the pretest.

Only eighteen girls attended the class on a regular basis, and eleven enrolled for Algebra II the following year. In 1974, ten girls were accelerated by one year compared to none of the boys and girls in the control group. Experimental girls were more advanced in math knowledge than those in the control group. In 1976, twelve girls were accelerated by one or more years, which is 48 percent experimental girls compared to 9 percent of control girls. Control boys were accelerated at about the same rate as experimental girls.

In 1974 and 1975, experimental girls showed more career interests in math; by 1976, these differences had dropped away. Gains from the experimental treatment seemed to fade as time passed without any further encouragement.

SELECTING CAREER EDUCATION STRATEGIES TO MEET THE CAREER DEVELOPMENT NEEDS OF THE GIFTED AND TALENTED

An effective career education curriculum for gifted and talented students should be well grounded in the research on their career development needs and should make creative use of those models of career education that have been successfully implemented. The planning of a career education curriculum should also take into account the unique learning styles of gifted and talented students. Finally, to be successful, career education for gifted and talented students must be integrated into the curriculum, the school, and the community. This chapter will enlarge upon each of these recommendations by describing applications from the research, clarifying ways of matching career education strategies with gifted learning styles, and discussing the integration of career education into the schools.

Research Applications to Meeting Career Development Needs of Gifted Students

Chapters 2 and 3 presented the research on the career development needs of the gifted and talented and the programs that have been developed and evaluated for the provision of career education. It is possible to link the needs of gifted and talented students to the strategies that have seemed to meet those needs successfully. The following sections summarize the information to be gained from the research on each type of career development need, and then present suggested strategies based on the model career education programs.

Multipotentiality

Gifted students may experience difficulties in career development because of multipotentiality, which is the ability to select and develop any number of competencies at a high level. Multipotentiality is a problem if—

1. the student complains of too many career choices;
2. vocational interest tests show interests in "everything";
3. the student excels across achievement tests, courses taken, and activities pursued, but cannot specify two or three career options;
4. the student shows inconsistency of vocational choices at one time or over time;
5. the student delays choice of a major in college;
6. as an adult, the individual makes multiple changes in career direction.

Career education and guidance strategies that may be effective in coping with multipotentiality are as follows:

1. Help students to focus by allowing limited number of career investigations, e.g. "You may visit two professionals;" "You may sit in on one class" (Sanborn et al. 1976).

2. Avoid the use of interest, aptitude, and achievement test data alone as the basis for career guidance. Values may be a better basis for career decision making (Perrone and Van Den Heuvel 1981). Card sorts and rank orderings help the student to focus interest.

3. Provide opportunities for hands-on experience in a few selected settings (Stovall 1972; Colson 1981).

4. Help students to create new careers through synthesis of different abilities and interests and futuristics. Gifted students seem to lack the skill of synthesizing (Torrance, Kaufmann and Hallford 1977; Perrone and Van Den Heuvel 1981).

5. Provide an internship in one setting chosen by the student (Montgomery County Public Schools, MD 1979; Eugene School District 45 1979; Colson 1981).

6. Provide individual counseling to the older student or adult.

Emotional Maturity and Long-Range Planning

The emotional maturity of the gifted student may present problems since making long-range decisions requires adult attitudes and competencies. Some indications that emotional maturity may be interfering with career development are the following:

1. The student sees no need for academic planning.

2. The student is an early emerger who is interested in only one career.

3. The student would rather follow the herd than seek a career that taps personal potential.

4. The student seems to fear failure in the future.

5. The student seems unaware of personal, financial, or practical considerations that may become barriers to be overcome before achievement of a career goal.

Some strategies that may be effective in coping with problems of emotional maturity are the following:

1. Provide intensive guidance laboratory experience to stimulate interest in planning ahead (Sanborn et al. 1976).

2. Stimulate early emergers' interest in many careers through an inquiry process that encourages student involvement (Stovall 1972).

3. Provide opportunity for early emergers to learn about alternative careers from professionals in their interest area (Fox 1976b; Allegheny Intermediate Unit 1978).

4. Sharpen students' awareness of long-range occupational consequences of today's academic decisions, e.g., present the figures and facts on the number and kinds of high-level careers closed to those without adequate high school and college mathematics (Sells 1980).

5. Provide individualized assessments of internal and external barriers to successful achievement of career goals (Case Western Reserve 1979).

Societal Expectations

Societal expectations present problems for the gifted student, whether they are too high or too low. Overly high expectations impede the career development of gifted students by fostering unrealistic or negative attitudes in the student. Low expectations, especially the low expectations held by our society of females and minorities impede career development by discouraging achievement and encouraging stereotypes. Overly high expectations may be hindering career development if—

1. a student resents parents' and teachers' career advice;

2. a student is classified as a gifted underachiever;

3. a student has an unrealistically high estimate of personal abilities;

4. a student avoids courses and activities where excellence may be difficult;

5. a student seems to feel "trapped" by a future destiny ("I guess I'll have to get a Ph.D").

Some strategies that may be helpful in dealing with high expectations are the following:

1. Provide an opportunity to express feelings about expectations through writing (Sanborn et al. 1976).

2. Provide group guidance emphasizing support activities (Whitmore 1980).

3. Provide individual counseling to help student assess abilities.

4. Provide interviews with individuals working in careers the student is considering, to give a realistic idea of requirements (Carroll 1977; Runions 1980).

5. Counsel student into courses in which A's are not assured, especially vocational courses emphasizing other than verbal and quantitative skills (Milne 1977).

6. Provide opportunity for the student to deal with feelings of being trapped in individual and group guidance (Sanborn et al. 1976).

Low expectations may be hindering the career development of a female who—

1. has internalized sex-role stereotypes;

2. lacks information about nontraditional career options;

3. lacks role models;

4. is discouraged by family or teachers from pursuing nontraditional coursework or career plans;

5. wishes to work only until marriage or children.

Some strategies that may be effective in helping females overcome societal expectations include the following:

1. Provide individualized assessment of internal and external barriers (Case Western Reserve University 1979).

2. Provide information about nontraditional careers (Fox 1976b; Stovall 1972).

3. Provide role models (Fox 1976b; Case Western Reserve University 1979).

4. Provide suggestions and counseling to parents and family (Kranz 1975; Sanborn et al. 1976; Wolleat 1979).

5. Provide leadership and assertion training workshops (Farmer 1980).

Low expectations may be hindering the career development of a minority student who—

1. has internalized negative cultural stereotypes;

2. has difficulty establishing ethnic identity;

3. receives pressures not to succeed in nonminority culture;

4. lacks financial and educational resources necessary to career goal attainment.

Some strategies which may help the minority gifted student to achieve include the following:

1. Provide information about the full range of options.

2. Provide individual and group guidance to overcome internalized negative stereotypes (Passow 1972).

3. Help establish cultural identity through reading and role models (Colangelo and LaFrenze 1981).

4. Help locate financial aid and appropriate educational programs.

Career Education and Learning Styles of the Gifted

Any career education curriculum for gifted and talented students must take into account the ways in which gifted and talented children learn. Miller (1981) sums up, "Because the gifted and talented can learn rapidly, note relationships between ideas readily, sense incongruities, and exhaust resources quickly, they require different instructional materials and strategies" (p. 268). This means that many of the popular means of delivering career education will be perceived as

dull or childish by the gifted. Much career information material is aimed at readers with low or moderate comprehension; gifted students find it repetitive and stodgy. Some commercial career motivation material promotes simplistic ideas about building good attitudes and loving the work ethic; these are fairly transparent to gifted and talented students and may lead them to discredit all career information. Traditional vocational exploration groups may offer too much discussion and not enough actual exploration for gifted students.

Sanborn, in Hoyt and Hebeler (1973), suggests that the career education curriculum for gifted and talented students must—

a. plan to permit rapid changes introduced by the youth it serves;

b. have a structure that results in little adult domination;

c. offer experiences that permit a large variety of honest options;

d. provide for those whose talents are in a speciality area as well as for those who have no specialty;

e. be little encumbered by the framework of bureaucracy;

f. permit the different to be served as well as the acceptable;

g. not permit the mundane to be embellished so as to appear exciting or novel;

h. be designed to serve the youth rather than to convenience the educational institution;

i. recognize that the students are not the only ones being educated, but that the parents of the gifted and talented, the career community, the teachers, the administrators, and the general public as partners in the process are receiving new experiences and should be altering behaviors. The gifted and talented as questioners and reconstructionists will change others as much as others will change them (p. 10).

Joyce Van Tassel-Baska (1981) has developed a kindergarten through twelfth grade model of career education for the gifted and talented aimed at meeting their psychosocial needs, skill development needs, and life career planning needs. It consists of six "strands." Strand one provides career role models; Strand two focuses on psychosocial needs; Strand three concerns "aptitude" development; Strand four centers on assessment devices; Strand five focuses on short-range goal setting and counseling; and Strand six emphasizes intensive career education experiences. The comprehensive model is shown in figure I. The career education and guidance program reviewed in the last section provides methodologies for nearly every suggested activity in this model.

Integrating Career Education and Guidance for the Gifted into Your School

The teacher or counselor at a small school in a rural community or a large school in a big city, who is being forced to trim programs and cut back, may find the comprehensive models and elaborate programs presented earlier somewhat intimidating. Most schools do not have many staff members who can be released from classroom duties or ample funding from large state and federal grants. Many schools are located far from universities and colleges where specialized

Figure 1

A K–12 CAREER EDUCATION MODEL FOR THE GIFTED

K – 3

Strand I
- Awareness of famous people and what they do.

Strand II
- Small group work on coping skills and social interaction.

Strand III
- Encouragement in the development of aptitudes at a self-pacing rate.
- Avoidance of sex-stereotyping patterns of behavior in play and work.

4 – 6

Strand I
- Focus on process skill development in the areas of analysis/synthesis/evaluation through examining the lives of famous people.

Strand II
- Small group counseling on the skills of group dynamics, leadership, and communication.

Strand III
- Establishment of a mentor program for the most goal-directed students.

Strand IV
- Administration of interest, personality, and ability inventories.

7 – 8

Strand I
- Establishment of biography clubs that discuss readings.

Strand II
- Small group counseling on motivation and task commitment issues.

Strand III
- Encouragement of individual and group projects in a specific field of inquiry.
- Continue mentor program and expand.

Strand IV
- Individual counseling on results of testing for ability and interest.

Strand V
- Counseling around high school course options.

9 – 12

Strand II
- Small group counseling on the integration of skills for life-planning.

Strand III
- Offer independent study options that provide alternative modalities and content for learning.

Strand IV
- Continued testing and analysis of results.

Strand V
- College counseling around choice of institution and course taking.

Strand VI
- Course in career areas. Internship for at least one semester.

Source: Van Tassel-Baska 1981, p. 331. Reprinted by permission.

career education programs for the gifted and talented are often located. Some communities may resent the provision of special programming for gifted students, operating on the belief that they can get by on their own. It is this author's contention, however, that the special career development needs of every gifted child can be met if there is one teacher, counselor, parent, or community resource person willing to help. The next few sections will provide ideas for those who are willing to be career educators of gifted and talented to work creatively with available resources.

The Rural or Small Town School

In a school of one hundred students, only a few will be gifted or talented. Many rural schools need to make provisions for one or two students, and may have difficulty deciding how to accomplish this. Several approaches are workable for the rural school.

Telecommunications may be the key to access to enrichment activities for rural gifted children. Public television offerings, access to videotape libraries, and computer hookups may provide learning opportunities related to career education.

The guidance laboratory may be an appropriate option if conducted like the Guidance Institute for Talented Students in Wisconsin. According to this model, high school students come once a year to a university for intensive testing, counseling, and career planning. Most states have a counselor or psychologist training institution that provides free testing and counseling through its practicum clinic. Although only a few university practicum clinics have programs specifically for gifted and talented students, most counselor and psychologist training program directors would be eager to make special arrangements for the guidance of gifted adolescents. A few preliminary arrangements and a yearly trip to the appropriate university may provide an opportunity for rural gifted students to meet with their gifted peers, to learn about themselves, and to plan for maximum use of the resources available in an individualized career education program.

The Small City School

A school district located in a small city may lack the ability to provide special teachers or classes for gifted and talented students. The qualities of diversity and ease of transportation, however, make the small city the ideal location to make maximum use of community-based approaches to career education. A small city usually has work settings representing most of the occupational clusters within close traveling distance of one another, making a variety of field trips, hands-on experiences, and shadowing activities possible. In addition, most small cities have a number of practicing professional and scholarly people who are willing to serve as mentors to gifted and talented students. Finally, like the rural school, the small city school can make use of the guidance laboratory approach by contacting and making arrangements with the nearest counselor/psychologist training institution.

The Urban and Suburban School

In many urban and suburban areas, the residential sections are far removed from the work places. Many urban schools must cope with declining financial support and the other problems that seem to be endemic to the city. While there are many gifted and talented students in the cities and suburbs, the costs of providing specialized classes and programming for them in each

school may be prohibitive. City and countywide approaches to career education for the gifted and talented may be cost-effective; Saturday schools and summer institutions provide a place where both academic enrichment or skills training and career education can take place. While community-based approaches to career education requiring many site visits may not be possible, longer-term mentorships and internships in selected settings are feasible. Most urban and suburban locations have universities, research institutes, corporations, and government agencies that can provide ample resources for gifted and talented students. City and county libraries can provide materials the schools may lack. Parents who are strong supporters of gifted organizations usually exist in these areas, and may support career education programming for gifted and talented students. Youth organizations may also collaborate with schools to improve career education.

SUMMARY

To be effective, career education programs for the gifted and talented should be research-based, consistent with gifted students' learning styles, and well integrated into the school and community.

The research shows that gifted and talented students experience three major career development problems. These are multipotentiality, emotional maturity, and societal expectations. Specific subpopulations of gifted students—the academically talented, the creative, and the highly gifted—have unique career development needs that also must be addressed by the career educator. Model programs for the gifted range from individual guidance approaches to comprehensive community-based career education programs. Many strategies developed by originators of these programs can be successfully applied to meeting career development needs of gifted and talented students. It is important for the career educator to link creatively research and model approaches to specific strategies to be used in the school.

To be consistent with gifted learning styles, career education for the gifted and talented must be flexible, open, and innovative in use of resources and materials. Independent inquiry must be a part of gifted career education, as it is a part of gifted education.

Career education for the gifted and talented can be a part of any school's provisions for the gifted. There are career education strategies appropriate to rural, small town, and city schools.

Educators who care about the guidance and career education of the gifted must act now. Like all enthusiasms in our fickle society, the current attention paid to gifted education in the literature and the legislation will soon pass. Career education programs should be carefully planned and solidly established to withstand the next swing of the pendulum.

APPENDIX

RESOURCES FOR CAREER EDUCATION AND GUIDANCE OF GIFTED AND TALENTED STUDENTS

PROFESSIONAL JOURNALS:

Exceptional Children	Council for Exceptional Children 1920 Association Drive Reston, Virginia 22091
Gifted Child Quarterly	National Association for Gifted Children 217 Gregory Drive Hot Springs, Arkansas 71901
G/C/T	G/C/T Box 6654 Mobile, Alabama 36606
The Creative Child and Adult Quarterly	8080 Spring Valley Drive Cincinnati, Ohio 45236
Journal of Creative Behavior	S.U.N.Y. at Buffalo 1300 Elmwood Avenue Buffalo, New York 14222
Journal for the Education of the Gifted	Dr. Carolyn Callahan, editor Ruffner Hall University of Virginia Charlottesville, Virginia 22903
MENSA Quarterly	112 Waverly Place New York, New York 10011
Roeper Review	2190 North Woodward Avenue Bloomfield Hills, Michigan 48013

NATIONAL ORGANIZATIONS:

American Association for Gifted Children
15 Gramercy Road
New York, New York 10001

The Association for the Gifted
The Council for Exceptional Children
1411 South Jefferson Davis Highway
Suite 900
Arlington, Virginia 22202
703/521-8820

National Association for Gifted Children
8080 Spring Valley Drive
Cincinnati, Ohio 45236
513/631-1777

The Gifted Child Research Institute
300 West 55th Street
New York, New York 10019
212/541-7059

GOVERNMENT OFFICES:

Office of the Gifted and Talented
U.S. Office of Education
Washington, DC 20202
202/962-4038

Region I: Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont

U.S. Office of Education, Region I
John F. Kennedy Federal Building
Government Center
Boston, Massachusetts 02203
617/223-5453

Region II: New Jersey, New York, Puerto Rico, Virgin Islands

U.S. Office of Education, Region II
Federal Building
26 Federal Plaza
New York, New York 10007
212/264-4370

Education for the Gifted
State Education Department
Room 314A, Main Building
Albany, New York 12224
518/474-4973

Region III: Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, West Virginia

U.S. Office of Education, Region III
401 North Broad Street
Philadelphia, Pennsylvania 19108
215/597-1011

Region IV: Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee

Vocational Technical Education
U.S. Office of Education, Region IV
50 Seventh Street, NE, Room 550
Atlanta, Georgia 30308
404/526-5311

Region V: Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin

U.S. Office of Education, Region V — 312/353-1743
HEW-OE 32nd Floor
300 South Wacker Drive
Chicago, Illinois 60606

Region VI: Arkansas, Louisiana, New Mexico, Oklahoma, Texas

U.S. Office of Education, Region VI — 214/749-2634
1114 Commerce Street
Dallas, Texas 75202

Region VII: Iowa, Kansas, Missouri, Nebraska

U.S. Office of Education, Region VII — 816—374-2528
Federal Office Building
601 East 12th Street
Kansas City, Missouri 64106

Region VIII: Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming

U.S. Office of Education, Region VIII — 303/837-3676
Federal Office Building, Room 9017
1961 Stout Street
Denver, Colorado 80202

Region IX: American Samoa, Arizona, California, Guam, Hawaii, Nevada, Trust Territory of the Pacific Islands

U.S. Office of Education, Region IX — 415/556-3441
Federal Office Building
50 Fulton Street
San Francisco, California 94102

Region X: Alaska, Idaho, Oregon, Washington

U.S. Office of Education, Region X — 206/442-0450
Mail Stop 628
1321 Second Avenue
Seattle, Washington 98101

National/State Leadership Training Institute on the Gifted and Talented — 213/489-7470
316 West Second Street, Suite 708
Los Angeles, California 90012

National Clearinghouse for the Gifted and Talented — 513/631-1777
The Council for Exceptional Children
1411 South Jefferson Davis Highway, Suite 900
Arlington, Virginia 22202

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